

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id

2014 MCI D4500 79

Component Rear Rear Diesel Engine

Fluid PETRO CANADA DURON XL SYN BLEND 15W40 (9 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

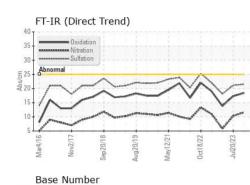
Fluid Condition

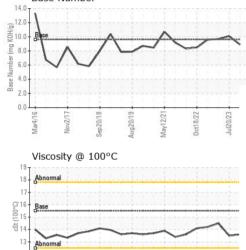
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0125060	PCA0101053	PCA0085129
Sample Date		Client Info		02 May 2024	20 Jul 2023	16 Feb 2023
Machine Age	mls	Client Info		328454	315821	305683
Oil Age	mls	Client Info		12633	11041	903
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	42	17	3
Chromium	ppm	ASTM D5185m	>5	2	<1	0
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	1	0	0
Aluminum	ppm	ASTM D5185m	>20	4	2	<1
Lead	ppm	ASTM D5185m	>150	3	2	<1
Copper	ppm	ASTM D5185m	>90	3	<1	<1
Tin	ppm	ASTM D5185m	>5	2	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
a						
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	0 history1	0 history2
	ppm ppm		limit/base		-	
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	1	current 2	history1 1	history2 <1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	1	current 2 0	history1 1 0	history2 <1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60	current 2 0 67	history1 1 0 62	history2 <1 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1	current 2 0 67 <1	history1 1 0 62 <1	history2 <1 0 60 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1 1010	current 2 0 67 <1 1022	history1 1 0 62 <1 1026	history2 <1 0 60 <1 971
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1 1010 1070	current 2 0 67 <1 1022 1163	history1 1 0 62 <1 1026 1136	history2 <1 0 60 <1 971 1074
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1 1010 1070 1150	Current 2 0 67 <1 1022 1163 1177	history1 1 0 62 <1 1026 1136 1054	history2 <1 0 60 <1 971 1074 1037
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 Limit/base	current 2 0 67 <1 1022 1163 1177 1349	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1	<1 0 60 <1 971 1074 1037 1283 3800 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25	<1 0 60 <1 971 1074 1037 1283 3800 history2 11
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 imit/base >35	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24 8	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25 6	<1 0 60 <1 971 1074 1037 1283 3800 history2 11 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 imit/base >35	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25	<1 0 60 <1 971 1074 1037 1283 3800 history2 11
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 imit/base >35	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24 8 6 current	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25 6 3 history1	<1 0 60 <1 971 1074 1037 1283 3800 history2 11 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 >20	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24 8 6 current 0.5	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25 6 3 history1 0.4	history2 <1 0 60 <1 971 1074 1037 1283 3800 history2 11 2 0 history2 0 history2 0.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 .	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24 8 6 current 0.5 11.6	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25 6 3 history1	<1 0 60 <1 971 1074 1037 1283 3800 history2 11 2 0 +istory2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 limit/base >7.5	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24 8 6 current 0.5	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25 6 3 history1 0.4	history2 <1 0 60 <1 971 1074 1037 1283 3800 history2 11 2 0 history2 0 history2 0.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 imit/base >35 20 imit/base >7.5 >20	current 2 0 67 <1 1022 1163 1177 1349 3692 current 24 8 6 current 0.5 11.6	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25 6 3 history1 0.4 10.3	history2 <1 0 60 <1 971 1074 1037 1283 3800 history2 11 2 0 history2 0 bistory2 0 5.8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 Imit/base >35 1 >20 Imit/base >7.5 >20 >30	2 0 67 <1 1022 1163 1177 1349 3692 current 24 8 6 current 0.5 11.6 21.5	history1 1 0 62 <1 1026 1136 1054 1304 3622 history1 25 6 3 history1 0.4 10.3 21.1	<1 0 60 <1 971 1074 1037 1283 3800 history2 11 2 0 history2 0 history2 0.1 5.8 18.1



OIL ANALYSIS REPORT





en20/18

12 11

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Mar4/16

Nov2/17

		VISUAL		method				history2	
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
~	V/V	Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
Carlon and the second second second	Nr	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
Aug20/19 May12/21	0ct18/22 Jul20/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Aug2 Mayi Jul2 Jul2	Odor	scalar	*Visual	NORML	NORML	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
10000		Free Water	scalar	*Visual		NEG	NEG	NEG	
A		FLUID PROPE	RTIES	method	limit/base	current	history1	history2	
	<u> </u>	Visc @ 100°C	cSt	ASTM D445	15.5	13.6	13.5	14.5	
		GRAPHS							
		Iron (ppm)			200	Lead (ppm)			
21	3	300 250 Severe			300	Severe			
Aug20/19 May12/21	0ct18/22 Jul20/23	200 - Abnormal			200				
At. Mi	ت o	<u>a</u> 150			톱 150	Abnormal			
		100			100				
		0			<u> </u>				
		Mar4/16 Nov2/17	Aug20/19	May12/21 0ct18/22	Jul20/23	Mar4/16	sep.20/10 Aug.20/19 Mav12/21	0ct18/22 Jul20/23	
		Ma No ^v Sep ²	Aug	May Oct1	Jul	No. No.	Aug	Jul	
	Aluminum (ppm)		10	Chromium (p	pm)				
	40 Severe			12	C				
		30 -			8				
Aug20/19 -	0ct18/22 - Jul20/23 -	E 20 - Abnormal			Ed 6	Abnormal			
Aug2 May	Oct1 Jul2	10			4				
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		Mar4/16 Nov2/17	Aug20/19	May12/21 0ct18/22	Jul20/23 .	Mar4/16 Nov2/17	Aug20/19	0ct18/22 Jul20/23	
		03	Au	ŏ	- -		Au Au	ŏ ī	
		Copper (ppm)			80	Silicon (ppm)			
		Severe 150 -	+		60	Severe			
		_			틆.40			Λ	
		50	• • • • • • • • • • •		20			IV	
		0 12 12 80	61	22	23	16	19	22	
		Mar4/16 - Nov2/17 -	Aug20/19	May12/21 0ct18/22	Jul20/23	Mar4/16 - Nov2/17 -	aep.20/19 Aug.20/19 Mav12/21	0ct18/22 Jul20/23	
		Viscosity @ 100°C		2 0	,	Base Number		5 7	
		20 T	1-1-1-1-1-			0-			
		18 - Abnormal			0.0 Index (mg KOH/g)	Race			
		00011 3314			<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u> <u></u> <u></u>		$\wedge \rightarrow$	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
		Autoinia		\sim	- qm 5.0				
		12-			Base /				
			119	(22	0.0	716	/19-	722 -	
		Mar4/16 Nov2/17	Aug20/19	May12/21 0ct18/22	Jul20/23	Mar4/16 -	Sep 20/10 Aug 20/19 Mav12/21	0ct18/22 Jul20/23	
Laboratory Sample No. Lab Number Unique Number Test Package		: PCA0125060 : 06186388 : 11043140 : MOB 2	Recei Teste Diagr	Madison Ave., Cary, NC 27513 BROWN Received : 21 May 2024 Tested : 22 May 2024 Diagnosed : 22 May 2024 - Wes Davis e at 1-800-237-1369.			BUS COMPANY - UPSTATE TRANSIT 50 VENNER ROAD AMSTERDAM, NY US 12010 Contact: CONNIE WILBUF cwilbur@browncoach.com		

Contact/Location: CONNIE WILBUR - BROAMS